

AGAMID LIZARDS OF THE GENERA *CAIMANOPS*, *PHYSIGNATHUS* AND *DIPORIPHORA* IN WESTERN AUSTRALIA AND NORTHERN TERRITORY

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ABSTRACT

Caimanops gen. nov. is proposed for *Diporiphora amphiboluroides* Lucas & Frost. The following species and subspecies of *Physignathus* and *Diporiphora* are studied: *P. longirostris* (Boulenger), *P. temporalis* (Günther), *P. g. gilberti* (Gray), *P. g. centralis* Loveridge, *D. convergens* nov., *D. a. albilabris* nov., *D. a. sobria* nov., *D. b. bennettii* (Gray), *D. b. arnhemica* nov., *D. magna* nov., *D. lalliae* nov., *D. reginae* Glauert, *D. winneckeii* Lucas & Frost, *D. b. bilineata* Gray, *D. b. margaretae* nov., and *D. superba* nov.

INTRODUCTION

Recent collections have made it increasingly clear that there are many more species of *Diporiphora* in the far north of Western Australia than previously believed. The main purpose of this paper is to define these additional species of *Diporiphora*. Because juvenile *Physignathus* have often been mistaken for *Diporiphora*, that genus has been included in this study, and so too has *Caimanops* gen. nov., whose single species was long placed in *Diporiphora*.

Generally Western Australian species of reptiles seldom extend further east than about longitude 140°E. Brief study of Queensland material showed that *Diporiphora* and *Physignathus* were not exceptional in this respect and that most, if not all, specimens belonged to different species or subspecies. It therefore seemed unnecessary to include the Eastern States species in this account of the Western species.

The three species of *Physignathus* and single species of *Caimanops* are strongly characterized, and their identification should present students with no problems. However, *Diporiphora*, as restricted herein, comprises a group of closely related species whose separation will undoubtedly prove difficult. Colour pattern in most species of *Diporiphora* tends to disappear at maturity. One therefore relies heavily on the dorsal scutellation and presence or absence of three folds in the region of the neck:

- (1) gular fold, which is located on the ventral surface of the neck;
- (2) scapular fold, i.e. the curving continuation of the gular fold upwards and backwards on to the shoulder;
- (3) postauricular fold, a straight fold behind the ear, extending upwards and slightly backwards to the dorsolateral stripe.

Post-mortem puckerings of loose skin must not be mistaken for true folds. Conversely the presence of folds must be recognized even when the skin is

not actually folded. What is to be looked for is not so much the fold itself as the potentiality for a fold. A true fold can only occur where there is sharp difference in scale size, *e.g.* a scapular fold is found where the granular scales about the insertion of the foreleg meet relatively large scales on the side of the neck; if the former scales grade into the latter no fold can form. A gular fold is scored as present when one or more transverse rows of granular scales separate the gulars from the pectorals. The postauricular fold at its strongest forms a pouch; at its weakest it is more of a ridge than a fold.

In the following descriptions length of appendages is expressed as percentage of body length (*i.e.* snout-vent length less length of head). Limbs are measured to end of longest digit exclusive of nail.

In the lists of material examined, registered numbers without prefix refer to specimens in the Western Australian Museum. All other material is prefixed with the initials of the collection, *viz.* SAM (South Australian Museum), NMV (National Museum of Victoria), QM (Queensland Museum), NTR (CSIRO Division of Wildlife Research, Darwin), JSE (British Joint Services Expedition to Central Australia — specimens now lodged in the British Museum), ERP (Pianka Collection — specimens now lodged in the Los Angeles County Museum of Natural History), BM (British Museum), and MCZ (Museum of Comparative Zoology). For the loan of these specimens I am grateful respectively to Dr T.F. Houston, Mr A.J. Coventry, Miss J. Covacevich, Mr J. Wombey, Lt Cdr A.Y. Norris, Dr E.R. Pianka, Mr A.F. Stimson, and Dr E. Williams.

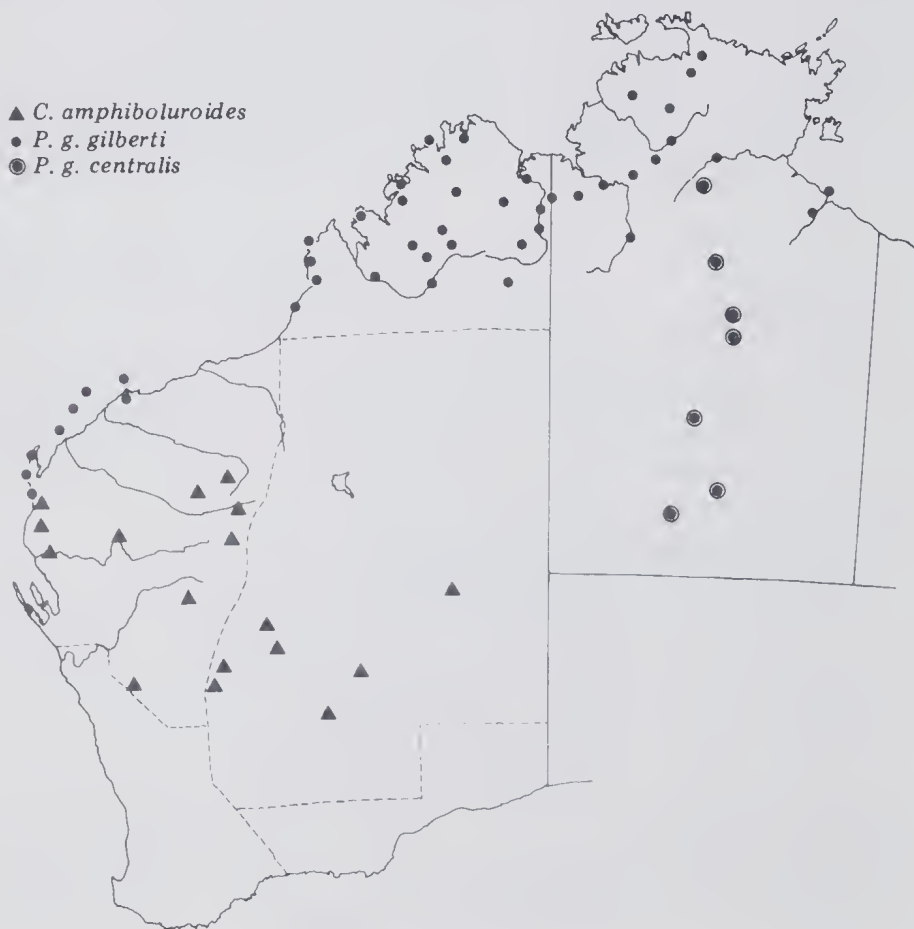
KEY

1. Vertebral scales larger and higher than other dorsals, forming a low crest; nuchal crest of high, laterally compressed scales 2
 No crest along midline of back; nuchal crest low or absent. (Genus *Diporiphora*) 6
2. Five low crests along back (a vertebral and on each side a dorsal and dorsolateral); no dorsolateral stripe; no femoral pores; tip of tail obtuse *Caimanops amphiboluroides*
 Only one crest on back (vertebral); broad whitish dorsolateral stripe; one or more femoral pores; tip of tail acute. (Genus *Physignathus*) 3
3. Keels of all dorsal scales converging on midline 4
 Keels of all or some dorsals parallel to midline 5
4. Femoral pores 4-11; white labial stripe not or only narrowly continuous with dorsolateral stripe and not or only narrowly extending to upper jaw; usually a large dark maroon spot immediately behind ear *Physignathus longirostris*
 Femoral pores 1-3; white labial stripe broadly continuous with dorsolateral stripe and extend-

	ing broadly to upper jaw	...	...	...						<i>Physignathus temporalis</i>
5.	Dorsal scales subequal in size, keels of all rows parallel to midline; dorsolateral stripe solidly white; usually a short white stripe between eye and ear	...	...	...	...					<i>Physignathus gilberti gilberti</i>
	Dorsals markedly heterogeneous in size and orientation, keels of inner rows parallel to midline and of outer rows converging on midline; dorsolateral stripe usually barred or spotted with dark brown; usually no white stripe between eye and ear	...	...	...						<i>Physignathus gilberti centralis</i>
6.	Keels of dorsal scales parallel to midline	...	...	...	...	...	...	...	...	7
	Keels of dorsal scales converging on midline									<i>Diporiphora convergens</i>
7.	Dorsal scales heterogeneous, including a series of enlarged scales immediately outside of paravertebrals	...	...	...	...	...	...	...	...	8
	Dorsal scales subequal in size	...	...	...	...	...	...	...	...	10
8.	Gular and postauricular folds present	...	...	...	...	...	...	...	...	9
	No gular and postauricular folds	...								<i>Diporiphora bilineata bilineata</i>
9.	Lips conspicuously white; dorsolateral stripe well developed anteriorly	...	...							<i>Diporiphora albilabris albilabris</i>
	Little or no colour pattern	...	...	...						<i>Diporiphora albilabris sobria</i>
10.	Gular fold present	...	...	...	...	...	...	...	...	11
	No gular fold	...	...	...	...	...	...	...	...	14
11.	Postauricular fold present; dorsal scales strongly keeled	...	...	...	...	...	...	...	...	12
	No postauricular fold; dorsals weakly keeled									<i>Diporiphora winneckeii</i>
12.	A femoral pore present	...	...							<i>Diporiphora bennettii arnhemica</i>
	No femoral pores	...	...	...	...	...	...	...	...	13
13.	Posterior lateral scales directed upwards; gular fold weak, sometimes broken medianly; dark dorsal crossbands (when present) narrow and ill-defined; grey vertebral stripe (when present) as narrow as dorsolateral stripe	...								<i>Diporiphora bennettii bennettii</i>
	Posterior laterals parallel in orientation to dorsals; gular fold strong; dark dorsal crossbands (when present) rectangular, clear-cut and as wide as interspaces; grey vertebral stripe (when present) much wider than dorsolateral stripe	...	...	...	...	...	...			<i>Diporiphora lalliae</i>
	Postauricular fold long and strong	...	...							<i>Diporiphora magna</i>
	Postauricular fold short and weak or absent	...	...	...	...	...	...	...	...	15

15. No indication of postauricular fold or spine 16
 One (occasionally two) postauricular white
 spines present and occasionally a short
 weak fold *Diporiphora bilineata margaretae*
16. A femoral pore present *Diporiphora reginae*
 No femoral pores 17
17. Gulars smooth; dorsals more strongly keeled
 than ventrals; usually some indication of
 dark dorsal crossbands and grey ventral
 stripes *Diporiphora winneckei*
 Gulars keeled; dorsals less strongly keeled
 than ventrals; no dorsal crossbands or ventral
 stripes *Diporiphora superba*

Fig. 1. Map of Western Australia and Northern Territory showing location of specimens of *Caimanops amphiboluroides*, *Physignathus gilberti gilberti* and *Physignathus gilberti centralis*.



Caimanops gen. nov.

Type species

Diporophora amphiboluroides Lucas & Frost.

Diagnosis

Moderately large agamid lizards with short limbs and tail; tympanum, nuchal crest, gular fold and pre-anal pores present. Agreeing with *Physignathus* and *Diporiphora* in having each pre-anal pore perforating a scale and in the alignment of the pores being directed backwards towards midline, but differing from both of those genera in having nasal located on (not below) canthus rostralis, tail terminating obtusely (as in *Chelosania*), five low crests along back, dark dorsal markings longitudinal (not transverse) in orientation, and complete absence of white dorsolateral stripe. Agreeing with *Physignathus* (but not *Diporiphora*) in having nuchal crest of laterally compressed scales, snout low and truncate in profile, and no vertebral stripe.

Distribution

That of the single species, *Caimanops amphiboluroides*.

Caimanops amphiboluroides

Diporophora amphiboluroides Lucas & Frost, 1902, Proc. Roy. Soc. Vict., new series 15: 76. Western Australia.

Diagnosis

As for genus.

Distribution

Western Australia between 23°15' and 29°20'S, mainly in mulga and other arid scrubs.

Description

Snout-vent length (mm): 45-94 (N=26, mean 74.0). Length of appendages (% length of body): head 29-42 (N=26, mean 34.7); foreleg 44-56 (N=26, mean 49.2); hindleg 60-79 (N=26, mean 70.2); tail 197-242 (N=24, mean 218). Width and depth of head (% length of head) respectively 59-74 (N=26, mean 67.5) and 43-63 (N=26, mean 52.1). Upper labials 14-19, including 1-5 small posterior scales. Pre-anal pores 1-3 (N=21, mean 2.0). Lamellae under fourth toe 18-24 (N=25, mean 20.8).

Strong nuchal crest composed of pointed scales, alternate scales being 2-3 times as high as others. Dorsal scales mostly small, juxtaposed and weakly keeled. A vertebral row and on each side a dorsal and dorsolateral row of enlarged scales, more strongly keeled and imbricate than ordinary dorsals and forming five very low crests, the vertebral being continuous, the others discontinuous (i.e. enlarged scales separated by 1-4 ordinary scales). A spiny postauricular fold, gular fold, and weak scapular fold present. Laterals, gulars and ventrals weakly keeled.

Upper surface pale grey marked with dark brown as follows: a median streak on posterior half of snout, a mark between eyes shaped like pair of

bat's wings, an oblique streak running back from brow towards nuchal crest, and three short, slightly curving, longitudinal streaks on each side of back. Broad whitish midlateral and ventrolateral stripes discernible in some specimens. Underneath pale, marked with numerous brown longitudinally orientated anastomosing streaks.

Material

North-west Division (W.A.): Newman (30929); Turee Creek (17686); 6 km SE of Warroora (14466); 13 km SE of Warroora (16954); 34 km S of Warroora (14464-5); 32 km W of Mundiwindi (25154); Kumarina (24010); Yinnietharra (40636); between the Ashburton and Gascoyne Rivers (SAM 4838 *b-e*); Gascoyne River crossing (SAM 6097); Belele (10612); Gullewa (5297); 'Western Australia' (NMV D1581, 8813 holotype). Eastern Division (W.A.): Gahnda Rockhole (28849); Albion Downs (19779-80, 28286); Kathleen Valley (14367); Mt Sefton (544); 24 km S of Atley (ERP 13643); Youanmi (39044); Mt Linden (12034).

Genus *Physignathus* Cuvier

For references to original description and synonyms, see Wermuth (1967: 91). For a description, see Boulenger (1885: 395).

Physignathus longirostris

Lepphognathus longirostris Boulenger, 1883, Ann. Mag. Nat. Hist. (5) 12: 225. Champion Bay, Western Australia (DuBoulay).

Physignathus eraduensis Werner, 1909, in Michaelsen & Hartmeyer's Fauna Südwest-Australiens 2: 275. Eradu, Western Australia (Michaelsen & Hartmeyer).

Physignathus longirostris quattuorfasciatus Sternfeld, 1924, Abh. Senckenberg. Naturf. Ges. 38: 236. Hermannsburg, Northern Territory (von Leonhardi).

Diagnosis

A slender long-tailed *Physignathus* with dorsals nearly uniform in size, their keels converging on midline; distinguishable from *P. temporalis* by more numerous femoral pores (more than 3) and by labial stripe not or only narrowly continuous with dorsolateral stripe and not or only narrowly extending to upper jaw.

Distribution

Western Australia: north nearly to the Fitzroy (St George Range), and south to the lower Greenough, the middle Murchison, Kathleen Valley, and the Great Victoria Desert. Northern Territory: north to Tennant Creek. South Australia: extreme north, about watercourses flowing south-easterly into Lake Eyre.

Description

Snout-vent length (mm): 27-114 (N=336, mean 74.2). Length of appendages (% length of body): head 34-56 (N=327, mean 42.4), foreleg 47-75 (N=323, mean 57.9), hindleg 100-145 (N=325, mean 123.4), tail 298-540 (N=316, mean 440). Width and depth of head (% length of head) respectively 49-78 (N=327, mean 58.2) and 37-63 (N=327, mean 48.4).

Upper labials 11-19, including 0-5 small posterior scales. Femoral pores 4-11 (N=182, mean 7.5). Pre-anal pores 1-4, usually 2 or 3 (N=182, mean 2.5). Lamellae under fourth toe 31-43 (N=224, mean 36.8).

Nuchal crest high. Enlarged vertebral scales forming a low dorsal crest. Remaining dorsals uniformly small, their keels directed back towards mid-line. Spiny postauricular and strong gular and scapular folds present. Gulars smooth. Ventrals weakly keeled.

Dorsally reddish brown with or without narrow dark reddish brown cross-bands which are usually widely broken in middle. Broad white dorsolateral stripe extending back to level of hindleg and forward to a little beyond foreleg, narrowly or not continuous with labial stripe (a white streak passing under tympanum and forward along lips nearly to end of snout). Dark reddish brown blotch behind tympanum. A narrow whitish midlateral stripe often discernible on posterior two-thirds of flanks. Tail and legs indistinctly crossbanded with pale brown. Chin and throat clouded with dark brown and occasionally flecked with white.

Material

Kimberley Division (W.A.): St George Range (167, 32133-4); Mt Phire, 23 km ESE of Anna Plains (27616-7).

North-west Division (W.A.): Bulgamurgat Soak, 70 km SE of Wallal (36147); Mundabullangana, including homestead and localities 13, 29 and 45 km SE and 20 km W (14370-5, 14379-90, 17076, 19370-5, 30142); Sherlock (14414); Jones River (14415-6); Harding River (13980); Roebourne (14417); Nickol Bay (17055); Maitland River (13993); Eramurra Creek (14428); 25 km E of Yarraloola (25638); Mt Herbert (14418-20, 20010); Millstream (14421-4, 20129, 20131, 34733-4, 34739); Tambrey (20009, 20011, 20124-8, 20130); Abydos (10807, 10809); Woodstock (12621, 13826, 14391-2); Marble Bar (NMV R895); Bamboo Creek (33418-9); Warrawagine (13257); Braeside (14585); Meentheena (14410-3); Mt Edgar (14393-409, 14429-30); Mosquito Creek (13255); Budjan Creek (13256); Nullagine (39080); Marillana (13281, 22637-8, 29073-6); Yampire Gorge (29106-8); Wittenoom Gorge (29104, 39167); Tom Price (31005-8); Duck Creek (13282); Barlee Range (25266); Yardie Creek (13274-7, 27618); Exmouth (14431, 31411); Shothole Canyon (14031); Learmonth (14432-6, 16995, 25624, 36298); Marrilla (5332); Cardabia (32600-1); Mia Mia (5006-8); Warroora (8164-6, 14437-41, 30381-3, 32577-9); Minilya (14442); Middalya (NMV D1773, 1781, 1793); Turee Creek (17685); Prairie Downs (19206-8); Newman (23987, 25197-9, 30914-7); Jiggalong (13332, 13349, 13662); 48 km SW of Bulloo Downs (22698); Mt Vernon (22820-2, 25238); Chalk Springs, Ethel River (22796-8); 32 km N of Beyonde (23938-9);

Kumarina (22743-5, 23965-9); Quobba (32620); Carnarvon and district (13683, 14443, 22944); Wooramel (14445-6, 19931); Gladstone (14447-8); Shark Bay (12207-8); Mileura (15755, 15757-61, 15801, 16756, 28234-5, 28342).

South-West Division (W.A.): Yallalong (13966, 14444); Murchison House (33852-3); Kalbarri (town and National Park) (14449-51, 27267-8, 29778, 33462-6, 33469, 33543-52, 33558-73, 33596, 33801-2, 33806-8, 33852-3, 33866-7, 33869, 33900); Galena (11116-7, 11132, 29787); Wicherina (14455-6); Ellendale Pool, Greenough River (14452-4); 26 km E of Walk-away (24907).

Eastern Division (W.A.): Well 49, Canning Stock Route (40878); Well 46, CSR (40900-1); Well 41, CSR (8716); Well 37, CSR (3969); Well 24, CSR (44197); 32 km W of Well 23, CSR (27065-7); 32 km S of Durba Hills (40359); Wari Soak, 145 km N of Carnegie (40609); Walter James Range (34224); 93 km ENE of Carnegie (21062); Well 14, CSR (8420); Pierre Spring, CSR (33389); 32 km NE of Millrose (ERP 11748-52); Wiluna (6339, 6456-7, 26233, 26512); 26 km E of Wiluna (15857); Warburton Range (31360); 68 km SW of Warburton Range (34304); Muggan Rockhole (15720); Albion Downs (30991); Kathleen Valley (40532); 8 km NE of Dunges Table (ERP 12130); Neale Junction (40949).

Northern Territory: Tennant Creek (NMV D69-70); Barrow Creek (NMV D4945-6); 10 km SW of Barrow Creek (24357); Alice Springs (NMV D183, 185-8, 190-1, 193-4, 197); Ormiston Gorge (NMV D12749-51, 12753, 13389); Derwent Creek (NMV D239); Ehrenberg Range (JSE 378, 388 *a-b*, 389, 399 *a-f*, 405); Willie Rockhole (23° 16'S, 129° 45'E) (JSE 324, 328-9, 352, 360); Kintore Range (JSE 267); Davenport Hills (44339; JSE 228); 5 km NE of Hermannsburg (20852); Palm Valley (20866-7); Finke River (NMV D2336, 3481); Ruined Ramparts, Petermann Ranges (JSE 160); Chirnside Creek (JSE 144-5); Curtin Springs (JSE 32); Charlotte Waters (NMV D509-10).

South Australia: Ernabella (NMV D10902); Oodnadatta (NMV D95-6, 210, 238); Wintinna Creek (NMV D12748).

Physignathus temporalis

Grammatophora temporalis Günther, 1867, Ann. Mag. Nat. Hist. (3) 20: 52. Port Essington, Northern Territory (Lord Derby).

Lophognathus labialis Boulenger, 1883, Ann. Mag. Nat. Hist. (5) 12: 225. Port Essington (Richardson, Gilbert).

Diagnosis

A slender *Physignathus* with dorsals nearly uniform in size, their keels converging on midline; distinguishable from *P. longirostris* by fewer femoral pores (less than 4) and by labial stripe broadly continuous with dorsolateral stripe and extending broadly to upper jaw.

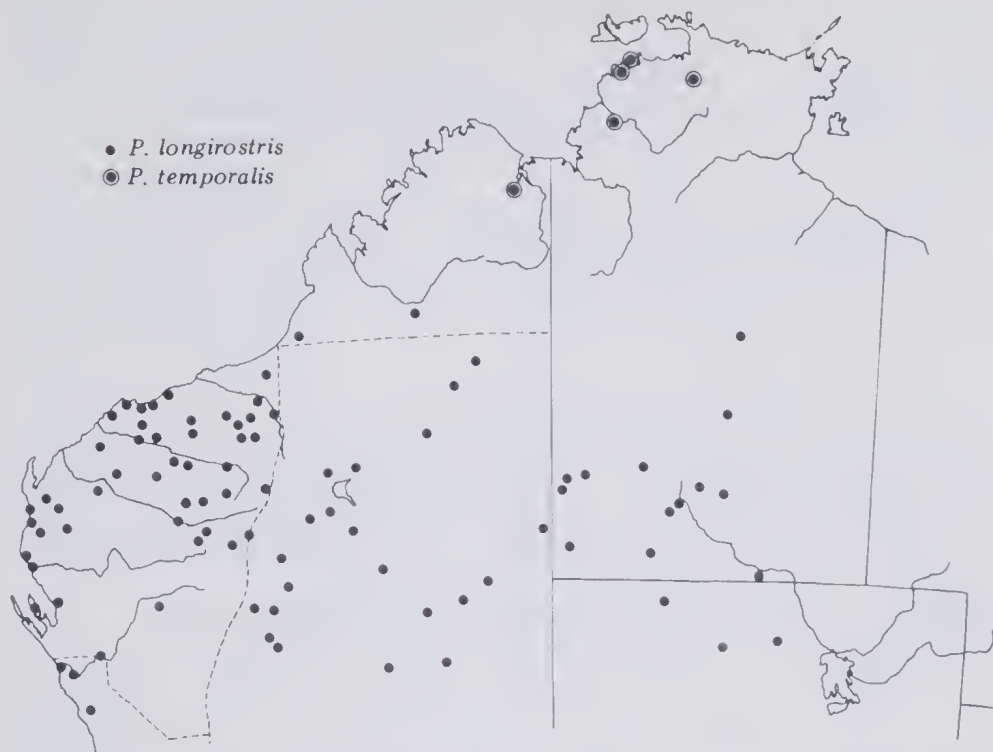


Fig. 2. Map of Western Australia, Northern Territory and South Australia showing location of specimens of *Physignathus longirostris* and *Physignathus temporalis*.

Distribution

Western Australia: far north of Kimberley Division.

Northern Territory: far north-west, from Cobourg Peninsula south to the Daly River.

Description

Snout-vent length (mm): 67-105 (N=15, mean 86.1). Length of appendages (% length of body): head 36-49 (N=15, mean 42.0), foreleg 54-63 (N=15, mean 59.7), hindleg 97-136 (N=15, mean 121.1), tail 366-457 (N=12, mean 422). Width and depth of head (% length of head) respectively 55-70 (N=15, mean 60.8) and 42-54 (N=15, mean 49.7).

Upper labials 11-14, including 0-3 small posterior scales. Femoral pores 1-3 (N=12, mean 1.9). Pre-anal pores 0-2, usually 1 (N=13, mean 1.0). Lamellae under fourth toe 28-40 (N=15, mean 34.1).

Nuchal crest high. Enlarged vertebral scales forming a low dorsal crest. Remaining dorsals uniformly small, their keels directed back towards mid-line. Oblique fold on side of neck terminating on ventrolateral surface of jaw in a line of high compressed scales. Gular and scapular folds strong. Gulars smooth. Ventrals weakly keeled.

Dorsally greyish brown with or without a few irregular dark reddish brown crossbands, especially on foreback. Broad whitish dorsolateral stripe, usually flecked or narrowly cross-banded with dark brown, posteriorly becoming obscure and anteriorly continuous with white labial stripe after curving forward and downward on side of neck. Upper edge of labial stripe diverging from lip and reaching canthus rostralis between nostril and eye. Tail and legs pale brown, indistinctly crossbanded with dark brown.

Material

Kimberley Division (W.A.): King River, 15 km S of Wyndham (34602).

Northern Territory: Darwin (23502; NMV D5517); 20 km NE of Stokes Hill (32217-20); Woolwonga Wildlife Sanctuary (41890-2, 42940-1); Red Lily Lagoon, Daly River (23502); 'Northern Territory' (NMV D4551).

Physignathus gilberti gilberti

Lophognathus gilberti Gray, 1842, Zoological Miscellany, p. 53. North coast of New Holland.

Redtenbacheria fasciata Steindachner, 1867, Reise der Österreichischen Fregatte Novara . . . Reptilien, p. 31. New Holland.

Physignathus incognitus Ahl, 1926, Zool. Anz. 67: 190. Australia.

Diagnosis

A relatively stout *Physignathus* with dorsals fairly uniform in size, their keels parallel to midline; a white horizontal streak usually present between eye and ear.

Distribution

Western Australia: south in the Kimberley Division to Lagrange, the Fitzroy and Halls Creek; and coasts and islands of the North-West Division from the Dampier Archipelago south nearly to the Tropic.

Northern Territory: far north, south to Wave Hill, the upper Roper and Borrooloola, but excluding wet north-west corner (Darwin region).

Description

Snout-vent length (mm): 28-128 (N=186, mean 78.1). Length of appendages (% length of body): head 35-50 (N=180, mean 43.5); foreleg 48-68 (N=180, mean 58.5); hindleg 105-146 (N=177, mean 123.9); tail 294-466 (N=142, mean 406). Width and depth of head (% length of head) respectively 52-82 (N=179, mean 64.4) and 41-61 (N=180, mean 50.8).

Upper labials 10-16, including 0-4 small posterior scales. Femoral pores 1-4 (N=108, mean 2.3). Pre-anal pores 1-3 (N=108, mean 2.0). Lamellae under fourth toe 25-38 (N=139, mean 31.8).

Nuchal crest lower than in congeners, composed of enlarged very strongly keeled scales. Enlarged, raised vertebral scales forming a low dorsal crest. Remaining dorsals fairly uniform in size and relatively large, their keels parallel to midline; scales becoming smaller laterodorsally with their keels directed back towards midline. Postauricular fold weak. Gular and scapular

folds strong. Laterals small and weakly keeled. Gulars smooth or very weakly keeled. Ventrals weakly keeled.

Dorsally greyish brown or reddish brown, with or without laterodorsal remnants of dark reddish brown crossbands. Broad white dorsolateral stripe reaching forward to side of neck and reappearing between ear and eye. Usually a broad white labial streak extending back to side of neck, located mainly on lower lip and lateroventral surface of lower jaw. A wide whitish midlateral stripe occasionally discernible, usually (like dorsolateral stripe) dark-edged.

Remarks

Certain populations in the Victoria River and Roper River drainages are affected by the proximity of *P. g. centralis*. Some Timber Creek specimens are almost intermediate between the two subspecies in the heterogeneity and orientation of the dorsal scales and in the development of the white stripe behind the eye. The upper Roper specimen has the dorsals slightly heterogeneous, no white stripe behind the eye, and the dorsolateral stripe barred; it could be placed almost as well with *centralis* as with the nominate subspecies.

The southern populations in Western Australia, though geographically very distant from *P. g. centralis*, tend towards that subspecies in coloration. In specimens from Broome and further south the dorsolateral stripe is often barred and the labial stripe weakly developed.

Material

Kimberley Division (W.A.): Pago (43549); Kalumburu (13568-9, 13571-5, 13577-9, 27630-3, 27635, 34576, 40494, 43548); King Edward River (28188-92, 28209); Crystal Creek (41877, 42932); Mitchell Plateau (43130, 43142-5, 43172-3, 43202, 43474, 43508-11); Port George IV (NMV D2360, 2365); 18 km E of Kuri Bay (40420-2, 40486); Drysdale Crossing (28237-9); New York Range (41878-81); Parry Creek (27628); 37 km SE of Kununurra (23114); Lake Argyle (42689-97, 42699-702, 42706-9, 42714-6, 42718, 42727, 43927-52); Lissadell (42732); Turkey Creek (14457); Mt Barnett (32339); Marion Downs (32286); Inglis Gap (27629, 32265); Mt Hart (24071, 24079); Wotjulum (11231, 11875); Lacepede Islands (43961-6); Coulomb Point (40252-7); Broome (14069-71, 14089, 14094-7, 14105-6, 14113-4, 29745, 31202); Langey Crossing (23019); Mt Anderson (32088, 32095); Fitzroy Crossing (21352); Halls Creek (23069); Lagrange (27619-20).

North-West Division (W.A.): Karratha (13942); Legendre Island (14339, 14355-6); Dolphin Island (37273-9); Kendrew Island (41855-6, 42967); Lowendall Island (12889); Barrow Island (27623-4, 28940); Sandy Island (27621-2); Thevenard Island (22894-5, 27625-7, 43953-4); Yardie Creek (13273); Ningaloo (14458); Coral Bay (41888).

Northern Territory: Oenpelli (32254; NMV D290, 5222); Woolwonga Wildlife Sanctuary (41882, 41884); Coomalie Creek (23254-5, 23760-2); Adelaide River (23770); 26 km NE of Pine Creek (23210); Katherine (13940-1, 13944-6, 14488, 16513, 21586, 21931-2, 23887, 24926); 16 km E of Daly River Settlement (37120); 30 km NE of Willeroo (23150); 42 km

SW of Willeroo (23144-6); 56 km SW of Willeroo (23143); Timber Creek (NMV D10440-4, 10838, 10887); 25 km SW of Auvergne (23136-8); 34 km NW of Newry (23128); Camfield River (28244); Wave Hill (13717); upper Roper River (NMV D5150); Borroloola (NMV D5096, 5123); Craggy Island, Sir Edward Pellew Group (40306-7).

Physignathus gilberti centralis

Physignathus gilberti centralis Loveridge, 1933, Proc. New Engl. Zool. Club 13: 71. Anningie, 42 km NW of Tea Tree Well, Northern Territory (Schevill).

Diagnosis

A moderately stout *Physignathus* with dorsals markedly unequal in size, the keels of only the innermost rows being parallel to midline. Further distinguishable from *P. g. gilberti* by increase in spininess (especially on back of head and neck) and by reduction or other modification of white longitudinal stripes (detailed below).

Distribution

Interior of Northern Territory, from Larrimah south to the James Range, i.e. between 15°30' and 24°20'S.

Description

Snout-vent length (mm): 68-122 (N=21, mean 95.8). Length of appendages (% length of body): head 36-51 (N=20, mean 43.8); foreleg 53-68 (N=19, mean 58.0); hindleg 108-130 (N=18, mean 118.6); tail 356-464 (N=13, mean 402). Width and depth of head (% length of head) respectively 56-72 (N=19, mean 62.6) and 42-54 (N=19, mean 47.5).

Upper labials 11-16, including 0-5 small posterior scales. Femoral pores 1-4 (N=21, mean 2.1). Pre-anal pores 1-3 (N=21, mean 1.8). Lamellae under fourth toe 26-37 (N=20, mean 31.4).

Nuchal crest high, composed of strongly compressed scales; 2 or 3 similar but shorter longitudinal series of spinose scales on each side of back of head. Vertebral scales enlarged, strongly keeled, and (in some specimens) laterally compressed; forming a low to moderately high dorsal crest. On each side of vertebral series two or three rows of small scales, their keels usually parallel to midline. Next are one or two longitudinal rows of enlarged dorsals, their keels parallel to or convergent on midline. Remaining dorsals much smaller, their keels directed back towards midline. Dorsolateral row (along bottom of white stripe) of enlarged spinose scales forming a low crest.

Dorsally brownish, variegated with darker and paler tints. Broad white dorsolateral stripe extending forward to side of neck, its upper margin usually dark and wavy; often barred or flecked with blackish brown. Usually no white stripe between eye and ear. White labial stripe extending back to postauricular fold, usually not reaching upper lip.

Material

Northern Territory: 10 km N of Larrimah (24121); Larrimah (24139);

Elliott (24174-5); Attack Creek (NMV D11166); Tennant Creek (NMV D2934, 4986-9, 4991-2, 5630); Anningie (MCZ 35207 holotype); Alice Springs (NMV D175-6, 182, 184, 189, 196); Illamurta (NMV D492).

Genus *Diporiphora* Gray

For references to original description and synonyms, see Wermuth (1967: 44). For a description, see Boulenger (1885: 393).

Diporiphora convergens sp. nov.

Holotype

R42931 in Western Australian Museum, collected by Messrs N. McNally and C. Pollett in May 1972 at Crystal Creek, Western Australia, in 14°30'S, 125°47'E.

Diagnosis

A small, long-legged *Diporiphora* with gular and scapular folds but no postauricular fold; distinguishable from all other species by keels of dorsal scales converging on midline.

Distribution

North-west coast of Kimberley Division (Admiralty Gulf), Western Australia.

Description of holotype (the only available specimen).

Snout-vent length (mm): 34. Length of appendages (% length of body): head 41; foreleg 61; hindleg 125; tail 288. Width and depth of head (% length of head) respectively 74 and 51.

Upper labials 11 or 12, including a small posterior scale. Lamellae under fourth toe 31.

No nuchal crest. Dorsals uniform in size, slightly smaller than vertebrae, their keels somewhat obtuse and converging on midline. Laterals nearly as large as dorsals and converging on them. One or two postauricular spines. Gular and scapular folds very strong. Gulars very disparate in size, three rows nearest to lower labials much larger than others. Gulars and ventrals weakly keeled.

No pattern apart from faint narrow dark bands across back, widely broken in middle. Edge of eyelids white.

Diporiphora albilabris albilabris sp. nov.

Holotype

R43517 in Western Australian Museum, collected by Dr D.J. Kitchener on 7 September 1971 at Mitchell Plateau, Western Australia, in 14°48'S, 125°50'E.

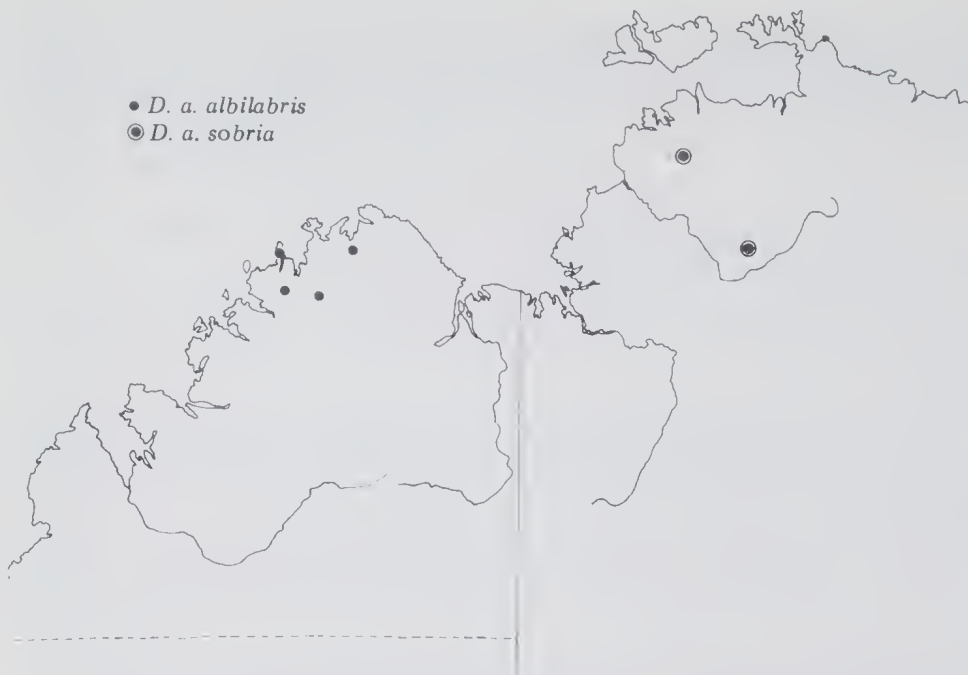


Fig. 3. Map of part of Western Australia and Northern Territory showing location of specimens of *Diporiphora albilabris albilabris* and *Diporiphora albilabris sobria*.

Diagnosis

A small *Diporiphora* with postauricular and gular folds and markedly heterogeneous dorsals; distinguishable from *D. australis* of Queensland in vertebrals (as well as paravertebrals) much smaller than innermost row of dorsals.

Distribution

North-west coast and adjacent plateaux of the Kimberley Division, Western Australia.

Description

Snout-vent length (mm): 27-55 (N=19, mean 43.3). Length of appendages (% length of body): head 39-52 (N=19, mean 46.0); foreleg 55-74 (N=19, mean 63.1); hindleg 85-117 (N=19, mean 102.3); tail 231-342 (N=14, mean 290). Width and depth of head (% length of head) respectively 69-87 (N=19, mean 73.9) and 48-62 (N=19, mean 53.8).

Upper labials 10-13 (including 1-3 small posterior scales). Femoral pores 0-2 (N=13, mean 1.0). Pre-anal pores 1-3 (N=13, mean 2.2). Lamellae under fourth toe 18-24 (N=18, mean 20.6).

Keels of enlarged dorsal scales (row immediately outside of paravertebral series) strong and well-aligned longitudinally. Scales of dorsolateral stripe enlarged, strongly keeled, slightly raised, and forming sharp boundary between flat upper surface and side of body. Postauricular fold very strong. Gular fold moderately strong. Scapular fold weak or absent.

Dorsal ground colour brown. Narrow grey vertebral stripe barely discernible. Dorsolateral stripe white anteriorly, usually becoming grey and hard to discern posteriorly. Five or six dark brown bands across body, interrupted by dorsolateral and vertebral stripes. Lips conspicuously white. Flanks greyish brown, dotted with white or pale brown. Tail and limbs brown, indistinctly ringed with dark brown. Underneath whitish; throat usually marked with two or three grey chevrons, the smaller inside the larger.

Paratypes

Kimberley Division (W.A.): Kalumburu (13780); Crystal Creek (41870, 42938); Mitchell Plateau (43167-9, 43212, 43343, 43515-6, 43532, 43534-7); King Edward River (14°55'S, 126°19'E) (28193, 41871-2).

Diporiphora albilabris sobria subsp. nov.

Holotype

R23180 in Western Australian Museum, collected by G.M. Storr and A. M. Douglas on 12 September 1964 at 35 km SE of Pine Creek, Northern Territory, in 14°04'S, 131°58'E.

Diagnosis

Distinguishable from *D. a. albilabris* by absence or near absence of colour pattern.

Distribution

Hilly north-western interior of Northern Territory from the Manton River south to the Fergusson River.

Description

Snout-vent length (mm): 36-41. Length of appendages (% length of body): head 44-47; foreleg 54-66; hindleg 98-112; tail 260-290. Width and depth of head (% length of head) respectively 67-75 and 54-62.

Upper labials 11 or 12, including 1 or 2 small posterior scales. No pores. Lamellae under fourth toe 19 or 20.

Folds and dorsal scutellation as in *D. a. albilabris*.

Specimens 23180-1 have ground colour reddish (like the rocks they were found under) and are completely devoid of pattern. The other specimens are not so reddish and have a trace of dorsolateral stripe and crossbands but no trace of white labial streak.

Paratypes

Northern Territory: 72 km SSE of Darwin (37133); 35 km SE of Pine Creek (23181-2).

Diporiphora bennettii bennettii

Gindalia bennettii Gray, 1845, Catalogue . . . lizards . . . British Museum, p. 247. North-west coast of Australia (Richardson).

Diagnosis

A moderately large *Diporiphora* with gular and postauricular folds and homogeneous dorsals; distinguishable from *D. lalliae* by its stronger postauricular fold, weaker gular and scapular folds, narrower vertebral stripe, narrower and less distinct dorsal crossbands, and laterals converging on dorsals.

Distribution

Kimberley Division of Western Australia, south to Yampi Sound, the King Leopold Range and Geikie Gorge, and east to Wyndham and Lake Argyle.

Description

Snout-vent length (mm): 23-80 (N=134, mean 50.9). Length of appendages (% length of body): head 35-53 (N=119, mean 43.0); foreleg 48-73 (N=117, mean 59.3); hindleg 82-126 (N=111, mean 106.3); tail 219-430 (N=85, mean 340). Width and depth of head (% length of head) respectively 59-77 (N=119, mean 67.9) and 43-63 (N=119, mean 52.0).

Upper labials 9-14, including 0-3 small posterior scales. Pre-anal pores 1-3 (N=70, mean 1.7). Lamellae under fourth toe 16-28 (N=109, mean 22.6).

Low nuchal crest. Dorsals moderately large and strongly keeled. Posterior laterals converging on dorsals (*i.e.* rows directed upwards and backwards). Postauricular fold strong and spiny. Gular fold weak, occasionally broken in middle. Scapular fold weak or absent.

Juveniles dorsally brown, narrowly and usually indistinctly crossbanded with dark brown; pale dorsolateral stripe best developed anteriorly, sometimes extending forward to eye; grey vertebral stripe narrow to moderately wide, barely discernible; flanks dark brown, usually dotted with white. Most adults and many immatures are patternless except for a large black spot above insertion of foreleg.

Material

Kimberley Division (W.A.): Kalumburu (27649-53, 28942-3, 40493, 43541-2, 43863-4, 43866, 43869-71); Crystal Creek, Admiralty Gulf (42926-7, 42929, 42931); Port Warrender (43310); Mitchell Plateau (40464-6, 43132, 43139, 43203, 43236-9, 43527-31, 43533); King Edward River (28204, 28208, 41860-1); largest of Coronation Islands (40458-9, 41410, 41419, 41421-5); Augustus Island (40480, 41279-82, 41318); largest of Heywood Islands (40452-3); Champagny Island (41435); Careening Bay (43955); Port George IV (NMV D2357, 2359, 2363); 16 km ESE of Kuri Bay (40399-416, 40487-92); 18 km E of Kuri Bay (40483-5); 8 km N of Wyndham (13562, 13592, 13598, 32362, 41862-6, 42924, 42933); Parrys Creek (43898-901); Grotto Creek (26784-7, 26789); New York Range (42933); Lake Argyle (42920, 42922); Koolan Island (27639-42, 27646, 29137); Wotjulum (11226-9, 11235-6, 11727-32, 11734-6, 11846-52, 11854-5, 11857-9, 11862-4, 11866-7); Secure Bay (27647); Inglis Gap (27643); Mt Caroline (32287); Geikie Gorge (32151); holotype (BM 1946.8.12.77).

Diporiphora bennettii arnhemica subsp. nov.

Holotype

NTR 135 in Darwin collection of Wildlife Survey Division, CSIRO, collected by Mr John Wombey on 27 August 1971 near the upper Katherine River, Northern Territory, in 14°13'S, 132°36'E.

Diagnosis

A moderately stout *Diporiphora* with gular fold, weak scapular fold, strong spiny postauricular fold, and homogeneous dorsals; distinguishable from *D. b. bennettii* by femoral pore.

Distribution

Arnhem Land Plateau of Northern Territory.

Description of holotype (the only available specimen)

Snout-vent length (mm): 49. Length of appendages (% length of body): head 46; foreleg 62; hindleg 107; tail 298. Width and depth of head (% length of head) respectively 76 and 51.

Upper labials 12 or 13, including one or two small posterior scales. One femoral pore. One or two pre-anal pores. Lamellae under fourth toe 21.

Dorsals large and sharply keeled. Laterals small, parallel in orientation to dorsals. Gulars and ventrals weakly keeled.

Dorsally brown with blackish brown crescentic bars across back and tail. Flanks brown (darkest above insertion of foreleg), spotted yellow.

Diporiphora magna sp. nov.

Holotype

R42786 in Western Australian Museum, collected by Dr D.J. Kitchener on 19 October 1971 at Old Lissadell, Western Australia, in 16°30'S, 128°41'E (now submerged by Lake Argyle).

Diagnosis

A large *Diporiphora* with homogeneous dorsals and postauricular and scapular folds but no gular fold.

Distribution

Kimberley Division of Western Australia, west to Napier Broome Bay and south to Lissadell. Northern Territory in the Victoria, Roper and McArthur River drainages.

Description

Snout-vent length (mm): 27-87 (N=99, mean 61.6). Length of appendages (% length of body): head 30-49 (N=98, mean 39.8); foreleg 51-65 (N=96, mean 57.7); hindleg 83-114 (N=97, mean 98.0); tail 286-428 (N=84, mean 358). Width and depth of head (% length of head) respectively 61-84 (N=98, mean 67.1) and 44-61 (N=98, mean 53.0).

Upper labials 10-17, including 0-4 small posterior scales. Pre-anal pores 1-3 (N=82, mean 1.9). Lamellae under fourth toe 19-28 (N=93, mean 23.8).

Low nuchal crest. Dorsals moderately large and strongly keeled. Posterior laterals parallel to dorsals or diverging from them. Postauricular fold spiny. Scapular fold weak to moderately strong.

Juveniles dorsally pale brown, with dark brown, rectangular, usually narrow bands across back; grey vertebral stripe narrow to moderately wide; white dorsolateral stripe; flanks usually dotted white; occasionally a pale midlateral stripe discernible, especially posteriorly. Most adults are patternless except for a large black spot above insertion of foreleg and occasionally a trace of dorsolateral stripe anteriorly.

Paratypes

Kimberley Division (W.A.): Pago (43550-8); Kalumburu (40479, 40495, 43547, 43867-8, 43872-80); 29 km N of King Edward River (28228); Durack River crossing, New York Range (41867-8); Grotto Creek (26788); 37 km SE of Kununurra (23126); Lake Argyle (40723-4, 40760-71, 40782, 42676-80, 42698, 42703, 42710-3, 42719, 42726, 42737, 42741-2, 42744, 42746, 42918, 42923, 43862); Lissadell (11778).

Northern Territory: Delamere (SAM 8167); Maranboy (23787-8); Mataranka (37108); Roper River Mission (NMV D10085); 10 km N of Larrimah (24115-20; NTR 203); Larrimah (24142-3); Borroloola (NMV D5095, 5097, 5124, 5179-92); Wearyan River crossing (40305).

Diporiphora lalliae sp. nov.

Holotype

R23030 in Western Australian Museum, collected by G.M. Storr and A.M. Douglas on 2 September 1964 at Langey Crossing, Western Australia, in 17° 39'S, 123° 34'E.

Diagnosis

A moderately large *Diporiphora* with gular, scapular and postauricular folds and homogeneous dorsals; distinguishable from *D. bennettii* by wider vertebral stripe, wider and clearer-cut crossbands, and posterior laterals parallel to dorsals.

Distribution

Northern interior of Western Australia, from the Fitzroy River southeast to the Rawlinson Range. Interior of Northern Territory, from Elliott south to Charlotte Waters.

Description

Snout-vent length (mm): 35-76 (N=32, mean 55.9). Length of appendages (% length of body): head 33-42 (N=32, mean 36.8); foreleg 47-59 (N=32, mean 52.9); hindleg 79-109 (N=32, mean 93.3); tail 273-410 (N=26, mean 345). Width and depth of head (% length of head) respectively 63-81 (N=32, mean 68.3) and 45-63 (N=32, mean 52.3).

Upper labials 10-16, including 0.3 small posterior scales. Pre-anal pores 1-3 (N=28, mean 2.0). Lamellae under fourth toe 23-29 (N=31, mean 24.7).

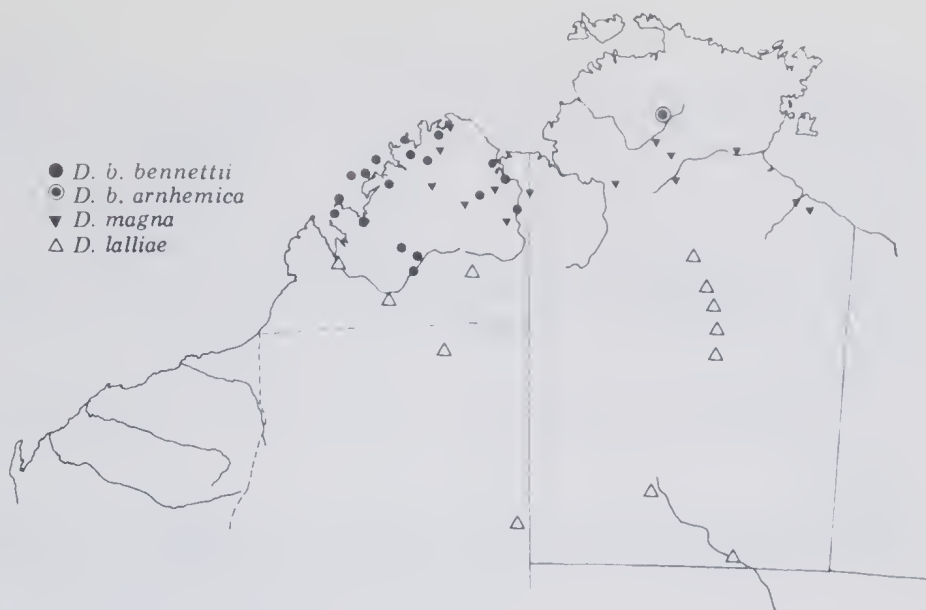


Fig. 4. Map of Western Australia and Northern Territory showing location of specimens of *Diporiphora bennettii bennettii*, *Diporiphora bennettii arnhemica*, *Diporiphora magna* and *Diporiphora lalliae*.

Low nuchal crest present, except in north of Northern Territory range (Elliott to Banka Banka). Postauricular fold weak in Kimberley Division, stronger and spinier further south and east. Scapular fold weak to moderately strong. Gular fold strong.

Dorsally pale brown with squarish dark brown crossbands about as wide as pale interspaces and broadly interrupted by wide grey vertebral stripe. White dorsolateral stripe, sometimes extending forward to eye. Pale mid-lateral stripe occasionally discernible, especially posteriorly. Under surface, especially throat, often streaked faintly with grey.

Remarks

Named after Mrs G.E. (Lally) Handley of the Western Australian Museum, in appreciation of her excellence as a typist of scientific papers.

Paratypes

Kimberley Division (W.A.): Langey Crossing (23012-3); St George Range (32135-6); Moola Bulla (SAM 3536).

Eastern Division (W.A.): between Wells 39 and 51, Canning Stock Route (4014); Giles (SAM 5352).

Northern Territory: Elliott (24176); Helen Springs (24200); 11 km S of Banka Banka (24203-4); 40 km N of Tennant Creek (24234-5); 16 km NW of Tennant Creek (SAM 13539A-B); Tennant Creek (SAM 4824A-C; NMV D2914); 10 km E of Tennant Creek (21424-7, 21436-9); 40 km S of Tennant Creek (24265); Palm Valley (SAM 5047); Charlotte Waters (NMV D2691, 2695).

Diporiphora reginae

Diporiphora reginae Glauert, 1959, Proc. Roy. Zool. Soc. N.S.W. 1957-58: 10. Kalin Rock, 15 km WNW of Cundeelee Mission, Western Australia (Butler).

Diagnosis

A medium-sized, small-headed *Diporiphora* with a gular fold but no postauricular fold or spine; distinguishable from *D. winneckei* by its femoral pore, more robust habit, stronger keels and reduced pattern (e.g. no grey ventral stripes).

Distribution

A small part of arid southern interior of Western Australia, from Goddard Creek south-west to the Frazer Range.

Description

Snout-vent length (mm): 29-72 (N=16, mean 47.7). Length of appendages (% length of body): head 27-38 (N=16, mean 34.3); foreleg 44-63 (N=16, mean 51.5); hindleg 74-107 (N=16, mean 94.7); tail 258-360 (N=13, mean 301). Width and depth of head (% length of head) respectively 66-85 (N=16, mean 72.6) and 47-73 (N=16, mean 57.1).

Upper labials 11-15, including 2-4 small posterior scales. Femoral pore one. Pre-anal pores 2. Lamellae under fourth toe 23-29 (N=10, mean 26.2).

No nuchal crest. Dorsals homogeneous, keels moderately strong. Scapular fold weak or absent. Gulars keeled.

Dorsally rufous brown, without crossbands or vertebral stripe. Usually some indication of pale dorsolateral stripe. Flanks rufous brown, flecked with brownish white. Under surface white.

Material

Eastern Division (W.A.): Kalin Rock (12960-4, 42583-8); 8 km S of Cundeelee Mission (21703-4); 17 km E of Zanthus (12224, 14491); Frazer Range (14083).

Diporiphora winneckei

Diporophora winneckei Lucas & Frost, 1896, Horn Expedition, Reptilia 2: 132; pl. 12, fig. 5. Charlotte Waters, Northern Territory (Spencer).

Lectotype designated by Coventry, 1970, Mem. Nat. Mus. Vict. 31:117.

Diagnosis

A small slender *Diporiphora* with a very small head and no postauricular fold or spine; scales less strongly keeled than in other species, under surface being silky in texture and often broadly striped with grey.

Distribution

Western Australia, north generally to about lat. 20°S but extending considerably further north in coastal regions (to Dampier Land and Derby), and south to Exmouth Gulf and the Great Victoria Desert. Interior of Northern Territory, north to lat. 21°S. Interior of South Australia, south to northern Eyre Peninsula.

Description

Snout-vent length (mm): 21-65 (N=118, mean 47.8). Length of appendages (% length of body): head 29-42 (N=115, mean 34.5); foreleg 44-67 (N=116, mean 53.2); hindleg 71-112 (N=115, mean 89.4); tail 228-415 (N=106, mean 322). Width and depth of head (% length of head) respectively 56.84 (N=115, mean 68.6) and 42-64 (N=114, mean 53.4).

Upper labials 11-16, including 0-4 small posterior scales. Pre-anal pores 1-3 (N=51, mean 1.8). Lamellae under fourth toe 19-30 (N=89, mean 24.6).

Usually no nuchal crest. Dorsals homogeneous. Weak gular and scapular folds in most populations; absent in north-west (*i.e.* absent in all specimens from Broome and northwards and in some from Pilbara coastal plain). White tubercle at end of labial stripe (not to be confused with postauricular spine of *D. bilineata*).

Dorsally pale brown. Dark brown crossbands reduced to small blotches contiguous to dorsolateral stripe. Grey vertebral stripe very wide. White dorsolateral stripe usually extending forward to eye after a short break above ear. White stripe extending back from lips nearly to side of neck. White midlateral stripe occasionally present.

Remarks

The above description applies especially to material from sandy regions. Where the soil is heavier, *e.g.* at Derby, Tom Price and Kumarina, specimens tend to be more robust, larger headed and less smooth.

Material

Kimberley Division (W.A.): Derby (15185, 20317-28, 26834; NMV D2111); 24 km S of Derby (32167); Coulomb Point (40266); 130 km E of Broome (36336); Streeters Station, near Broome (116).

North-West Division (W.A.): De Grey (2123); 16 km S of Port Hedland (30427-33); Boodarie (17059); mouth of Turner River (14461); 8 km E of Mundabullangana (14459-60); 39 km W of Cane River (41873); 13 km W of Barradale Crossing (42939); Marrilla (5050, 5333-4); Tom Price (31009); 3 km S of Turee Creek (25135); Jiggalong (21618); Kumarina (23970-4).

Eastern Division (W.A.): Joanna Spring (SAM 4823B); 3 km S of Mt Romilly, Canning Stock Route (40896); Well 41, C.S.R. (40933); Well 30, C.S.R. (40943); 32 km S of Durba Hills (40360); 27 km N of Weld Spring (15840); 32 km NE of Millrose (ERP 11733); 30 km ENE of Jupiter Well (43968); Dover Hills (43967); 29 km N of Alexandra Springs (28862); 8 km NE of Duges Table (ERP 12142-3).

Northern Territory: 60 km SE of The Granites (SAM 11168); Alice Springs (NMV D181); Ehrenburg Range (JSE 398a-g); Willie Rock-hole (23° 16'S, 129° 45'E) (JSE 334, 340a-d, 348a-r); east Bonython Range (JSE 192, 204a-b); 8 km W of Churnside Creek (JSE 144a-c); Curtin Springs (JSE 18, 34); Charlotte Waters (NMV D10155-6 paralectotype and lectotype respectively); E of Old Andado (NTR 319).

South Australia: Cordillo Downs (SAM 5001 A-B); Lake Coongie (SAM 4985 A-E); near William Creek (SAM 13223 A-D); Watson (SAM 10822-6); 37 km ENE of Wirrulla (24529-30).

Diporiphora bilineata bilineata

Diporiphora bilineata Gray, 1842, Zoological Miscellany, p.54. Port Essington, Northern Territory (Gilbert).

Diagnosis

A small *Diporiphora* with no gular, scapular and postauricular folds, and seldom with more than one pre-anal pore; distinguishable from *D. winneckei* by its heterogeneous dorsals and white postauricular spine.

Distribution

Far north of Northern Territory, south to the Roper River.

Fig. 5. Map of Western Australia, Northern Territory and South Australia showing location of specimens of *Diporiphora bilineata bilineata*, *Diporiphora bilineata margaretae*, *Diporiphora winneckei* and *Diporiphora reginae*.



Description

Snout-vent length (mm): 36-64 (N=94, mean 49.7). Length of appendages (% length of body): head 33-48 (N=90, mean 40.2); foreleg 48-66 (N=89, mean 57.7); hindleg 79-117 (N=89, mean 97.4); tail 240-389 (N=62, mean 318). Width and depth of head (% length of head) respectively 62-81 (N=90, mean 69.1) and 44-65 (N=90, mean 53.3).

Upper labials 9-13, including 0-3 small posterior scales. Pre-anal pores one (rarely 2). Lamellae under fourth toe 18-28 (N=87, mean 22.5).

Two or three median rows of scales on back, *i.e.* two rows of paravertebrals and (when present) the vertebral row, smaller than adjacent dorsals. Dorsolateral row of enlarged and raised scales. Posterior laterals in rows parallel to those of dorsals. Postauricular spine (occasionally two, rarely more) nearly always white, separated from ear by distance about equal to diameter of tympanum.

Dorsally brown with 6-9 pairs of dark crossbands, trapezoid in shape and widest at contact with narrow grey vertebral stripe. Dorsolateral stripe best developed anteriorly, the scales often dark with white edges. Very rarely a pale midlateral stripe. Pattern disappearing with age, dorsolateral stripe usually persisting longest.

Material

Northern Territory: Port Essington (BM 1946.8.12.75 holotype); Yirrkala (SAM 2858); Oenpelli (37174-5; SAM 2847 A-C; NMV D5168-75, 5177-8, 5213-28); Mt Tolmer (NTR 261); 20 km NE of Stokes Hill (32230-3); Darwin, including Casuarina Beach, Rapid Creek and Berrimah (21973, 23503-6, 23526-8, 23531-40; SAM 4825 A-H; NMV D800, 4543, 4556, 5159-60, 8215; NTR 167); Berry Springs (SAM 8934A-F); Howard Springs (23627); 6 km S of Darwin River Dam (NTR 165); 72 km SSE of Darwin (37132); Adelaide River (23227); 13 km S of Adelaide River (23226; NTR 346); 26 km NE of Pine Creek (23207-9); 5 km NW of Pine Creek (23212); 39 km SE of Pine Creek (23179); upper Roper River (NMV D5147-9); Dryfield Creek (NMV D5128-9).

Diporiphora bilineata margaretae subsp. nov.

Holotype

R27648 in Western Australian Museum, collected by Mr W.H. Butler on 8 July 1965 at Kalumburu, Western Australia, in 14°18'S, 126°30'E.

Diagnosis

A small *Diporiphora* with no gular fold and little or no indication of postauricular fold; distinguishable from *D. b. bilineata* by its homogeneous dorsals, and from *D. winneckei* by its white postauricular spine.

Distribution

Far north of Kimberley Division of Western Australia; also Groote Eylandt in Gulf of Carpentaria, Northern Territory.

Description

Snout-vent length (mm): 29-59 (N=37, mean 43.1). Length of appendages (% length of body); head 34-46 (N=37, mean 39.3); foreleg 46-60 (N=37, mean 55.4); hindleg 82-110 (N=37, mean 98.0); tail 258-356 (N=29, mean 308). Width and depth of head (% length of head) respectively 65-81 (N=37, mean 70.7) and 48-65 (N=37, mean 55.0).

Upper labials 10-15, including 0-3 small posterior scales. Pre-anal pores usually 2, occasionally 1. Lamellae under fourth toe 22-28 (N=37, mean 24.1).

Nuchal crest weak or absent. Scapular fold weak or absent. White post-auricular spine (rarely brown or more than one) separated from ear by space about equal to diameter of tympanum. Lateral scales at midbody almost as large as dorsals.

Dorsally brown with 5-8 (mostly 7) pairs of dark brown bands across body, widest where contacting broad grey vertebral stripe, narrowest where broken by dorsolateral stripe; bands on one half of body often not aligned with those of other half. Flanks dark brown, spotted with pale brown. Pattern disappearing with age, dorsolateral stripe usually persisting longest.

Geographic variation

The two widely separated segments of this subspecies are surprisingly similar. Groote Eylandt specimens differ in having a stronger scapular fold, longer hindleg, more numerous subdigital lamellae, narrower vertebral stripe, and wider and whiter dorsolateral stripe.

Remarks

Named after Margaret Butler, wife of Mr W.H. Butler who collected the holotype and much of the other material studied in this paper.

Paratypes

Kimberley Division (W.A.): Anjo Peninsula (43960); Kalumburu (13600, 43865, 43881-3); Crystal Creek (41869); King Edward River (28194, 28223); New York Range (42942).

Groote Eylandt (N.T.): (SAM 2848, 13483 A-Z).

Diporiphora superba sp. nov.

Holotype

R43178 in Western Australian Museum, collected on 14 January 1973 by Messrs L.A. Smith and R.E. Johnstone on the Mitchell River, Western Australia, in 14°25'S, 125°50'E.

Diagnosis

A large slender *Diporiphora* with short narrow head, long tail, long slender limbs and digits, and no folds, crests, ridges, spines or tubercles.



Fig. 6. Map of part of Western Australia showing location of specimens of *Diporiphora superba* and *Diporiphora convergens*.

Distribution

North-west of Kimberley Division, Western Australia.

Description

Snout-vent length (mm): 61-88 (N=10, mean 72.2). Length of appendages (% length of body): head 29-34 (N=10, mean 31.4); foreleg 53-64 (N=10, mean 58.2); hindleg 93-120 (N=10, mean 104.4); tail 430-553 (N=10, mean 479). Width and depth of head (% length of head) respectively 50-58 (N=10, mean 54.3) and 41-55 (N=10, mean 48.7).

Upper labials 11-13, including 0-3 small posterior scales. Pre-anal pores 2. Lamellae under fourth toe 26-31 (N=10, mean 28.3).

Lepidosis relatively uniform, but ventrals noticeably larger and more strongly keeled than dorsals.

In life uniformly green above and yellow below, quickly fading *post mortem* to bluish grey and white respectively (a few specimens have a brown median dorsal strip).

Paratypes

Kimberley Division (W.A.): Kalumburu (13576); Mitchell Plateau (41263-4, 41266); Boongaree Island (43956-8); Prince Regent River (43959); Manning Creek (32066).

DISCUSSION

In southern Australia *Amphibolurus* far outnumbers other agamid genera in species and individuals, but in the north it is largely replaced by *Diporiphora* and *Physignathus*. The latter genera are represented by 11 species in the Kimberley Division of Western Australia, compared to three of *Amphibolurus*. In the South-West Division of Western Australia there are eight species of *Amphibolurus* but only one *Physignathus* and no *Diporiphora*.

The sub-humid north-west coast of the Kimberley Division (annual rainfall 800-1400 mm) is the richest known region with respect to number of *Diporiphora* species. Here occur five species: *D. bennettii*, *D. bilineata*, *D. albilabris*, *D. superba* and *D. convergens*. The first three of these, after a break in the dry hinterland of Cambridge Gulf, re-appear (but as different subspecies) in the sub-humid north-west corner of the Northern Territory. Similar disjunctions between north-west Kimberley and the north-west of the Northern Territory are well known in birds, e.g. the pigeons *Ptilinopus regina*, *Ducula spilorrhoa* and *Chalcophaps indica*.

Adding *Physignathus gilberti* and *P. temporalis* we have seven species of *Diporiphora* and *Physignathus* for the sub-humid zone of the Kimberley Division; moreover all of these species except *P. gilberti* are restricted to this zone. In the semi-arid zone of the Kimberley Division (annual rainfall 500-800 mm) the number of species falls to four, namely *D. magna*, *D. winneckei*, *D. lalliae* and *P. gilberti*. In the arid southern interior of the Kimberley Division (annual rainfall 300-500 mm) only *D. winneckei* and *P. longirostris* have been recorded.

Apart from rainfall, the distribution of these species is influenced by the nature of the substrate. *D. bennettii* (both subspecies) and *D. bilineata margaretae* (but not *D. b. bilineata*) are almost wholly confined to sandstone country. *D. magna* is mainly found on relatively heavy soils in broad river valleys, *D. lalliae* on light to moderately heavy soils covered with *Triodia*, and *D. winneckei* on desert sand-dunes. In the arboreal genus *Physignathus*, the nature of the vegetation is more important than the substrate. *P. longirostris*, for example, attains its greatest densities in the river gums (*Eucalyptus camaldulensis*) lining watercourses in the North-West Division.

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